REMARKS

Claims 6, 14-26 and 34 have been cancelled. Claims 1, 4, 7, 10, 32, and 35 have been amended. Claims 1-5, 7-13, 27-33 and 35-64 are now pending in this application. Claims 27-33 and 35-64 are withdrawn. Support for the amendments is found in the existing claims and the specification as discussed below. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Interview

Applicants' representative would like to thank Examiners Ford and Lankford for the productive personal interview of December 8, 2005 with Dan Altman and Connie Tong which is summarized on page 7 of this paper.

Claim objections

The Examiner has objected to claims 4 and 6 as being substantial duplicates. With this amendment, claim 6 has been cancelled. Applicants respectfully request withdrawal of the objection.

Rejection under 35 U.S.C. § 112, first paragraph

Claims 10-13 are rejected under 35 U.S.C. § 112, first paragraph as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) had possession of the claimed invention at the time that the application was filed.

The Examiner asserts that there is no support in the specification for calcium chloride as the transfecting agent and that in calcium phosphate mediated transfection, $CaPO_4$-DNA is the transfection reagent. Therefore, there is no support for Applicants' amendment of the calcium chloride in the gel matrix as 10-40 mM.

Applicants respectfully point out that calcium phosphate is not mentioned in the specification at all. The present specification describes the transfection agent as a metal salt, preferably calcium chloride or calcium acetate (see paragraph 0041 at page 10). Accordingly, when the specification discusses that "the transfection reagent in the gel matrix will be higher than in the total reaction volume – on the order of 5 mM to 0.1 M, preferably 10-40 mM"

(paragraph 0044, page 12) it is clear that the specification is referring to a metal salt, preferably a calcium metal salt such as calcium chloride or calcium acetate as described in paragraph 0041. See also paragraph 0043 on page 11 which describes "a gelatin-transfection reagent mixture comprising transfection reagent (e.g. metal salt such as calcium chloride)...". Additionally, Table 1 on page 16 sets forth $CaCl_2$ as the Transfection Reagent in column 1. Applicants submit that it is clearly set forth in the present specification that the transfection reagent may be calcium chloride.

In view of Applicants' arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 4 and 6-8 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office Action states that it is not clear what is meant by "matrix complex" and that claims 4 and 6 are substantial duplicates. In response, claim 4 has been amended to "matrix" and claim 6 has been cancelled. As explained in paragraph 0044, the transfection reagent may be in a matrix such as gelatin. Accordingly, the dependency of claim 7, which formerly depended from claim 6, now cancelled, has been amended to depend from claim 4. Withdrawn claims 32 and 35 have been amended for consistency. Claim 34 has been cancelled as being analogous to claim 6.

Rejection under 35 U.S.C. § 102(e)

Claims 1, 2, and 4-8 are rejected as being anticipated by Webb, et al. (U.S. Patent No. 6,670,129).

The Examiner rejects the claims as either anticipated (claims 1, 2, and 4-8) or obvious (claims 1-8 and 10-13) over U.S. Patent No. 6,670,129 to Webb. Webb teaches printing of a mixture of foreign biomolecules such as DNA in combination with a transfection agent onto a cell transfection apparatus (see col. 3, lines 58-61; col. 7, lines 28-31) While neither calcium chloride nor calcium acetate are disclosed, Webb does teach a metal salt which is calcium phosphate (col. 3, lines 52-53; col. 7, lines 21-22).

This ground of rejection is believed to be overcome by Applicants' amendment of claim 1 to recite that "the bottom of at least some of the wells are at least partially coated with a composition comprising a metal salt which is not pre-mixed with the biomolecule." Support for the amendment is found on page 8, paragraph 0034, line 6 of the present specification. As discussed particularly in paragraphs 0034 to 0037 of the present specification, a key feature of the invention is that the transfection device has only the transfection reagent affixed on the surface of the transfection device. That way the device is easily commercialized, and mass produced, storable and ready to use. The desired biomolecule can be added to the device later. Because the transfection reagent is affixed to the device without the biomolecule, the user can add any desired biomolecule while enjoying the advantage that the transfection reagent is already present on the plate. Accordingly, the transfection procedure can be completed in a shortened time period.

The present amendment of Claim 1 clarifies that the coating on the device does not include the biomolecule. Although Webb, et al. disclose one alternative embodiment where the transfection agent can be mixed with the biomolecule and printed together onto the cell transfection device, Webb, et al. never disclose coating of the transfection device with the transfection agent alone.

Additional amendments have been made as discussed during the December interview. The term "coated" in Claim 1 has been amended to "affixed" to clarify that the transfection agent is attached to the plate to distinguish the claimed invention from culture medium in a well. Support is found in paragraphs 0034 to 0037 of the specification. Claim 1 has been amended to clarify that the composition comprises "a transfection agent comprising a metal salt" to further define the nature of the transfection agent. Support is found in paragraph 0041 at page 10.

Applicants assert that Webb, et al. clearly do not teach all of the elements of the claims as amended. Webb, et al. do not teach affixing a multiwell plate with a transfection agent which is a metal salt and which is not pre-mixed with the biomolecule. Furthermore, one of ordinary skill in the art would not be motivated to affix a transfection reagent onto a plate without the biomolecule in view of Webb, et al. because Webb, et al. teach printing their cell transfection apparatus with an array of protein or genes (see col. 14, lines 6-32). The advantage taught by Webb, et al. include segregation of the transfected cells from the non-transfected cells on the

plates with the printed biomolecules (col. 13, line 41 to col. 14 line 5). Webb, et al. do not teach or suggest a plate affixed with a transfection agent. At best, in some alternate embodiments, Webb, et al. teach that the transfection agent may be mixed with the foreign biomolecules and then printed onto the solid support (see col. 3, lines 58-61 and col. 7, lines 29-31). However, Webb, et al. provide no motivation to affix a transfection agent to a solid support without the biomolecule(s) of the array.

In view of Applicants' amendments and arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 1-8 and 10-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Webb, et al. (U.S. Patent No. 6,670,129) in view of Ausubel, et al. (Current Protocols in Molecular Biology, 1988).

As discussed above, the present claims are not obvious in view of Webb, et al. because Webb, et al. provides no motivation to affix a transfection reagent to a solid surface such as a multiwell plate, without first pre-mixing with biomolecules of interest. This deficiency is not corrected by Ausubel, et al.

Ausubel, et al. teach a method where the "transfection agent" is actually a $CaPO_4$-DNA complex. However, Applicants have amended claim 1 to clarify that the transfection agent comprises a metal salt which is not pre-mixed with the biomolecule. A $CaPO_4$ –DNA coating is clearly outside of the scope of claim 1 as amended as the transfection agent is defined as the metal salt alone and claim 1 specifies that the transfection agent/metal salt is not complexed (pre-mixed) with the biomolecule. The calcium phosphate precipitation method described by Ausubel, et al. does not teach or suggest a solid surface "affixed with a composition comprising a transfection agent comprising a metal salt which is not pre-mixed with the biomolecule" as now set forth in claim 1.

Regarding claim 10, claim 10 has been amended to recite relatively closed language ("consisting essentially of") which precludes the presence of a biomolecule on the cell culture/transfection device. Furthermore, claim 10 is limited to a preferred embodiment which is "calcium chloride in a gel matrix, wherein the concentration of the calcium chloride in the gel matrix is 10-40 mM" which is neither taught nor suggested by the cited references.

In summary, neither of the cited references teach adherence of a transfection agent which is a metal salt such as calcium chloride to a solid surface for cell transfection. It could not have been predicted that a metal salt, such as calcium chloride, affixed to a solid surface, could efficiently serve as a transfection device based upon the cited references.

In view of Applicants' amendments and arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

CONCLUSION

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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